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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,752	06/12/2006	Keith R. Minnich	4553-00013	6059
7590 12/13/2010				
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EXAMINER				
MANOHARAN, VIRGINIA				
ART UNIT		PAPER NUMBER		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/531,752

**Applicant(s)**

MINNICH ET AL.

**Examiner**

Virginia Manoharan

**Art Unit**

1771

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 10 November 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) 113-119 and 121-132 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 113-119 and 121-132 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claims 113-119 and 121-132 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a). Claim 127, as recited, appears to be at odds with claim 113, the claim from which it depends. Claim 113 (b) recites passing said feed water stream through a cation ion exchange system, whereas, claim 127 recites passing said feed water stream through membrane softening equipment which is inconsistent therewith.

b). Claim 123 recites the limitation "said acidified feed water stream " in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claims 113-119 and 121-132 are objected to because of the same reasons as set forth at pages 3-4, sections a), 1) – 3) of the previous Office action. [Since applicants fail to address these objections, it is assumed they are acquiescing therein].

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 113-119 and 121-132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heins (6,733,636) in view of Riggs, Jr. (4,746,438) and Wiegert (4,235,715).

Heins and Riggs are applied for the same combined reasons as set forth at page 3 of the previous Office action.

Wiegert is cited to teach a process/method wherein a weak acid cation ion exchange system is operated in conjunction with a degasifier in a hydrogen form as claimed in claim 114; as well as being operated in a sodium form as further claimed in claim 115. See Fig. 2 of Wiegert. To incorporate the above teachings of Riggs, Jr or Wiegert to Heins' process would have been obvious to one of ordinary skill in the art inasmuch as Heins in FIGS 1-2 indicates them to be what is conventionally done in the art as "PRIOR ART"; suggests the combination of the above water treatment at col. 3, lines 35-57; and further suggests the motivation to raising or maintaining the circulating concentrated brine to a high pH at col. 4, lines 50-54. Furthermore, Riggs' disclosure at col. 1, lines 7 -14, would at least be suggestive of the multi-valent metal cations being removed from the feed stream to a non- precipitating residual level. In like manner, Heins at col. 3, lines 44-47, renders obvious the elimination of non-hydroxide alkalinity.

Applicant's arguments filed November 10, 2010 have been fully considered but they are not persuasive.

Applicants' argument such as: "Claim 113 is now limited to using a cation ion exchange system, in combination with de-gassing unit 30, for removing substantially all multivalent metal cations from the feed water stream....In contrast, Heins '636 does not teach or disclose the use of a cation ion exchange system to remove multivalent metal cations" is not considered well-taken. Wiegert, not Heins, was cited to teach that using a cation ion exchange system in combination with a degassing unit 30 for removing substantially all multivalent metal cations from the feed water stream is known and therefore is not an unobvious subject matter nor is it indicative of criticality in the art.

Furthermore, the argument with regard to the "seeding technique" of Hiens, although not required by the claims, are not excluded therefrom. The claims recite "comprising" which is all-inclusive. Also, the claims are not limited to the argued seeding technique commensurate with the argument. Moreover, applicants are reminded that their claims define the invention, and applicants can not avoid the effect of the prior art by improperly reading into claims in a pending application limitations from the specification. Note for example, the reference to paragraph 00011 on pages 3 and 4 of the specification as filed. Applicants' further argument that the invention of the present case deals with highly contaminated waters and Riggs is intended to purify pre-defined high quality water is of no patentable significance. The product or the fluid -in -process may be new or unexpected, however, product is not the basis for patentability of a method/process claim.

The combined limitations of claims 127, 129 and 130-131 incorporated into claim 113 would distinguish from the combination of references above; and would place the case in condition for allowance.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kozak et al discloses the use of a selected cation exchange resins to remove multivalent cations ions.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 571-272-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on 571-272-1444.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Virginia Manoharan/  
Primary Examiner, Art Unit 1771